Year 6 · Algebra: Patterns, Points and Number Sentences

Name: _____ Date: _____

Hi! This sheet helps you spot rules in growing patterns, check if number sentences are true, and plot points on a coordinate plane. Take your time and show your working.

Warm-up

1. Fill in the missing number: $6 \times ___ = 42$

2. True or false? $15 - 3 \geq 12$

3. What are the coordinates of a point that is 4 to the right and 0 up from (0, 0)?

4. Continue the pattern: 5, 8, 11, 14, ___, ___

Practice

5. Aroha builds towers with blocks. Tower 1 has 4 blocks, Tower 2 has 7 blocks, Tower 3 has 10 blocks. Write the rule in words and find how many blocks Tower 6 has.

6. True or false? $8 \times 7 \leq 8 \times 5 + 20$. (Remember the order of operations.)

7. Complete the open number sentence: $36 \div ___ + 5 = 14$

8. Plot these points on a coordinate plane and say which one is on the y-axis: A(3, 2), B(0, 5), C(4, 0).

9. A food stall at the Avondale market charges $2 for entry plus $3 for each smoothie. Write a rule for the total cost, then find the cost of 5 smoothies.

10. A pattern follows the rule $y = 2 \times x + 1$. Complete the table of values for $x = 0, 1, 2, 3$.

Challenge

11. Use the rule $y = 3 \times x - 2$ to make a table for $x = 1, 2, 3, 4$, then plot the points on a coordinate plane. What do you notice about the shape they make?

12. A tiling pattern uses this rule: number of tiles = $4 \times$ step + 2. Kauri says step 10 needs more than 40 tiles. Write a true/false inequality to check, and find which step first has more than 50 tiles.